

CFARS 2018 General Update

(Consortium for Advancement of Remote Sensing)

Philippe Coulombe-Pontbriand

AWEA 11th of September 2018



Agenda



CFARS Overview

Mission, Vision and Values

2021 Horizon

2018 Roadmap

Working Groups

Next Meetings

Get Involved !





Who

- **2017-18 members:**

Major North American wind project owners, developers, operators, 3rd consultants, OEM and tech providers

- **Industry RSD facilitator:**

Working group enabling collaboration on projects promoting the acceptance and standardization of Remote Sensing use.

- **Private industry players:**

Private players supporting the different groups working on remote sensing use acceptance and standardization.

Why

- **Create consensus:**

Seek industry consensus around the use of RS. Speak with a common voice.

- **Build bridges:**

Build bridges between industry players, research centers, standardization body and tasks. Support IEC 61400-15 working group.

- **Rapidly address private industry RS needs :**

Steer short term projects aimed at supporting private industry needs

How

- **Access to information**

Give access to a large pool of industry RS data from private sector.

- **Support RS validation projects**

Join members' resources to support short term practical projects validating use of RS

- **Jointly present results**

Present compelling results to banks (tax equity), the broad industry and other stakeholders

CFARS Mission - Vision - Values



Mission

- Increase acceptance of Remote Sensing Device (RSD) by sharing information and involving the broad industry
- Reduce project development costs by supporting/enabling standardization and acceptance of RSD
- Reduce uncertainty of pre-construction estimates by demonstrating and leveraging the value of RSD

Vision

- Significantly contribute to the competitiveness of the wind industry by 2021 through broader acceptance/validation of RSD

Values



Open

- LOW ENTRY BARRIER
- INFORMATION SHARING
- INCLUDE MEMBERS FROM ALL HORIZON



Collaborative

- SHARE BEST PRACTICES
- SOCIALIZE FINDINGS



Results Driven

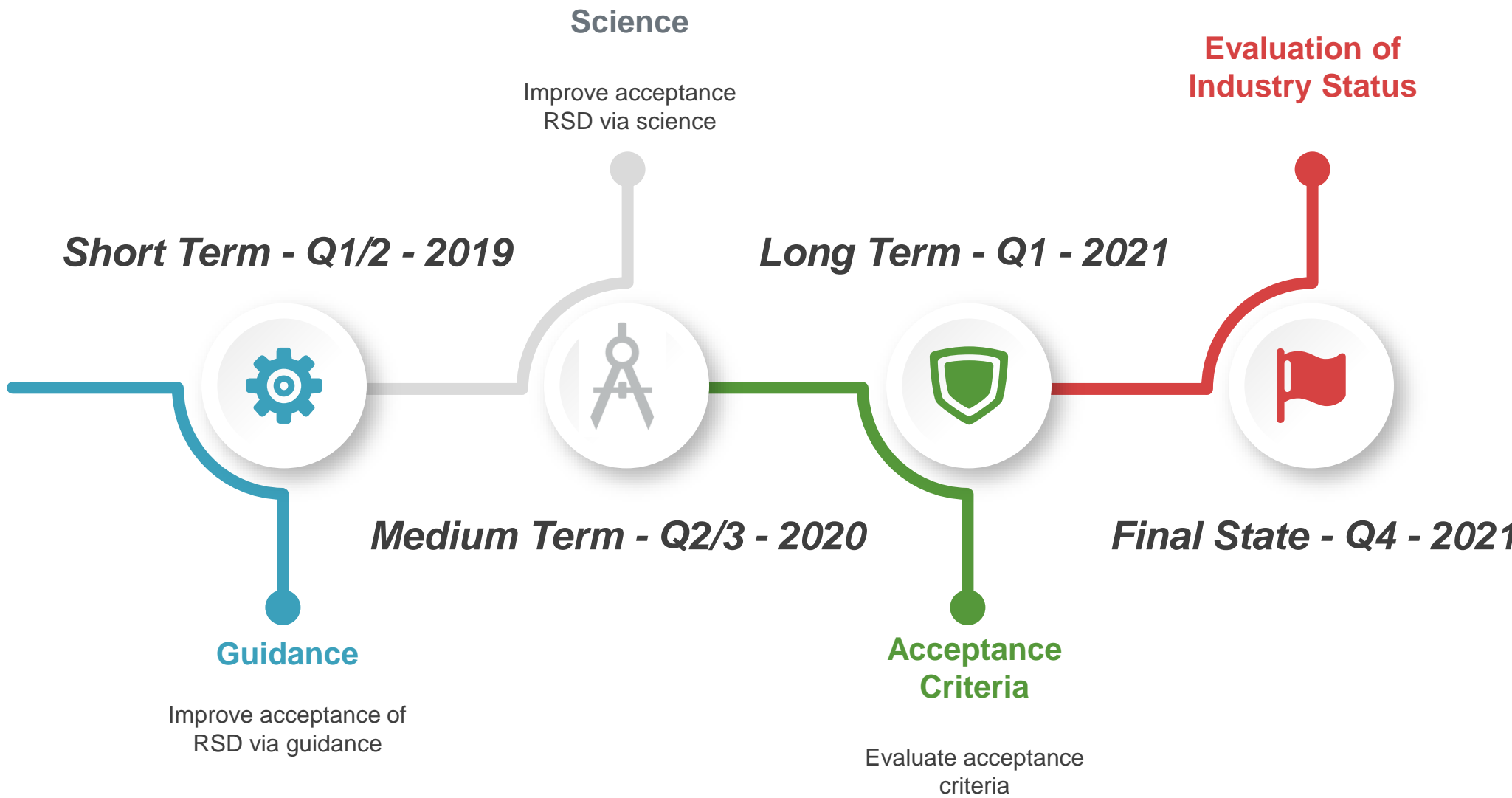
- CLEAR GOALS
- SHORT TERM GOALS



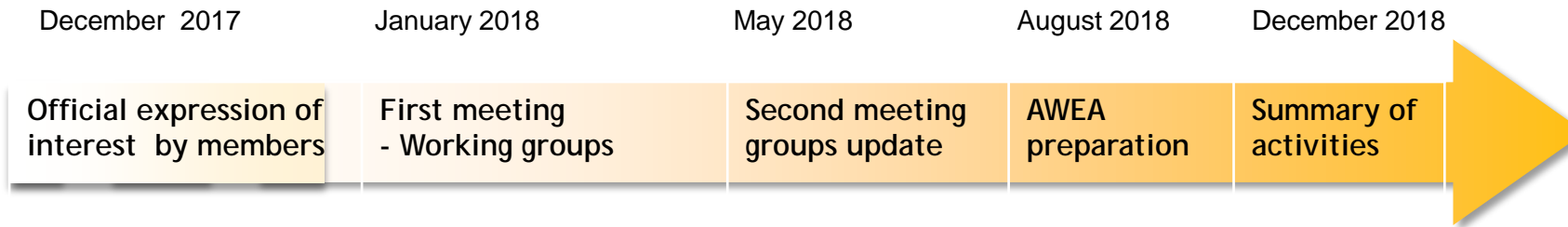
Leadership

- UNITED MESSAGE
- SUBGROUP CHAMPIONS

CFARS - The 2021 Horizon



CFARS 2018 Roadmap

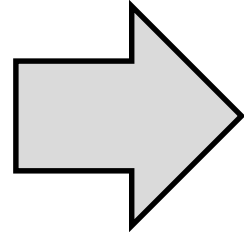


• Proposed milestone	• Description
<ul style="list-style-type: none"> • Official expression of interest by members 	<ul style="list-style-type: none"> • Seek formal expression of interest by members • Get commitment from members to make the consortium a success • Get commitment to take part in the consortium meeting
<ul style="list-style-type: none"> • First official consortium meeting 	<ul style="list-style-type: none"> • Presentation of the official members • Creation of the working groups (Guidance, Science) and assignment of group leads
<ul style="list-style-type: none"> • Second consortium meeting 	<ul style="list-style-type: none"> • Presentation of advancement of projects by the working groups • Preparation for broader diffusion of outcome (AWEA, etc)
<ul style="list-style-type: none"> • AWEA preparation 	<ul style="list-style-type: none"> • Support AWEA in preparation of a panel on remote sensing • Discuss how to present consortium to a broader audience

CFARS Working Groups



CFARS
Consortium For Advancement
Remote Sensing



Guidance
Working Group

Science
Working Group



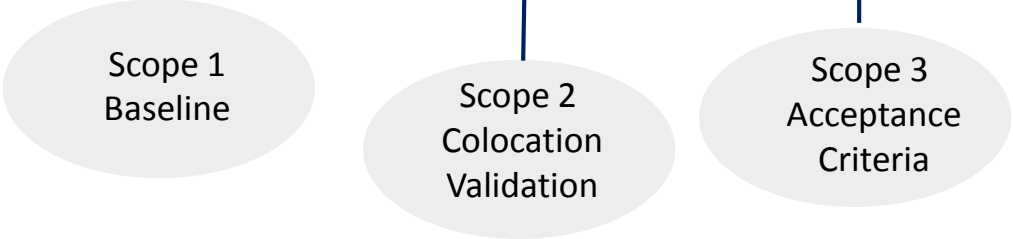
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Increase Acceptance of RSDs

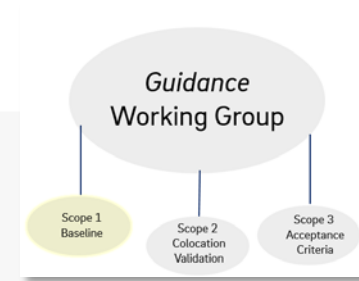


Matthew Meyers – Group Lead

Guidance Working Group



Mission:
Provide Data-Driven
Recommendations on RSD
Standardization and Acceptance



Mission:

- Summarize current state of the North-American RSD industry by end of Q2-2019
- Inform science and Scope 2-3 Guidance group

Roadmap & Next Steps:



Survey
(Q1'19)



Centralize Public
Docs.
(Q2 '19)



Centralize 'in house'
Best Practices
(Q2 '19)



Inform Science and Guidance
Scope 2-3
(Q2 '19)

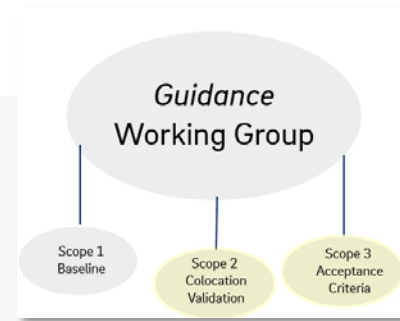


Key Accomplishments:

SURVEY

- **Survey group formed**
 - Met 5 times
 - Broad range of participants
- **Survey form ready for release**
- **Survey will launch in the coming days!**
 - **Request:** Need single nominee from each company to participate (matthew.meyers@eon.com)
 - Results to be published by year end

- **Section 1 – Deployment History Summary Table**
 - Purpose – industry deployment characteristics
 - Method – Complete a formatted Excel table specifying terrain, climatic conditions, generalized location
 - Platform – via file upload through Survey Monkey (convert Excel table to PDF before upload)
- **Section 2 – Questions**
 - Purpose – industry snapshot of use, experience and best practices
 - Method – Complete a MS Word document of multiple choice and free form answers
 - Platform – via file upload through Survey Monkey
- **Logistics**
 - One respondent per company, please allocate the appropriate time to research and complete (8-16 hours expected)
 - Survey will be live this week
 - Results will be grouped by Developer, Consultant, & OEM



Mission:

- Scope 2: Collaborate to provide data driven colocation validation best practices
- Scope 3: Collaborate to develop data driven consensus acceptance criteria

Scope Definition:

Scope 2: Colocation Validation

Goal: Develop colocation best practises of remote sensing device (RSD)

- Develop new defensible guidelines
- Integrate defensible current best practices
- The scope should go beyond well understood methodologies such as the physical colocation of devices

Methodology: Establish standard validation procedures

- Focus on dataset validation and appropriate data uses
- Informed from Task C and the Science Group
- Define defensible performance indices


Potential data sources: Controlled test sites and 'in the wild' uncontrolled sites

- Validate best practices of RSD to anemometry and RSD to RSD
- Existing data: Distribute validation code to be run by individual contributors
- New data: Run fresh validations at various sites

Scope 3: Acceptance Criteria

SUBGROUP
TO BE FORMED IN 2019

Roadmap & Next Steps:



Gather Colocation
Dataset
(Q2 '19)

Results Validation
(Q2 '20)

Results Publication
(Q3 '20)

Inform Science and Guidance
Scope 3
(Q3 '20)



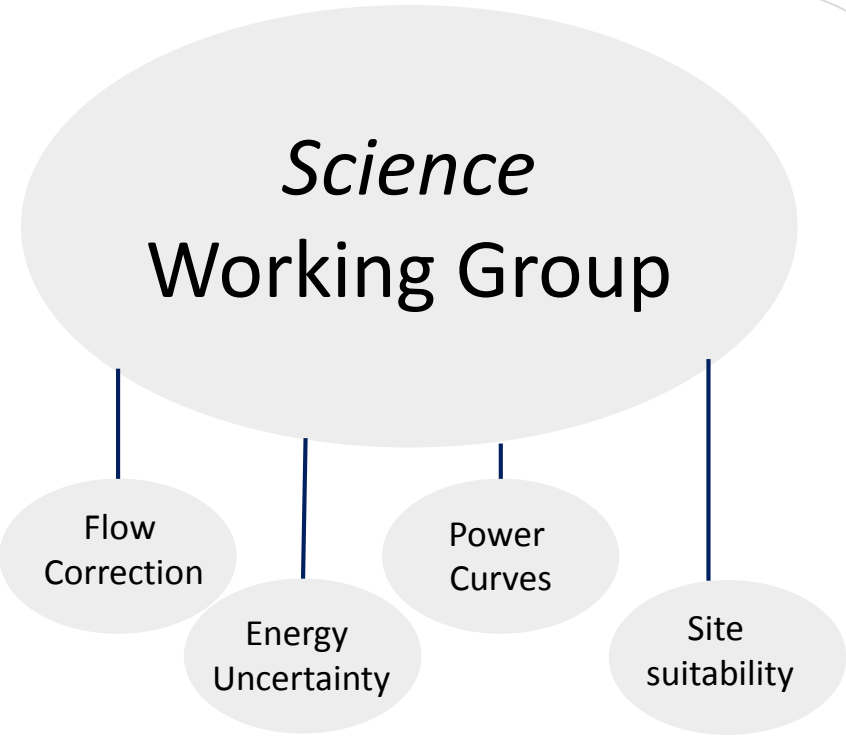


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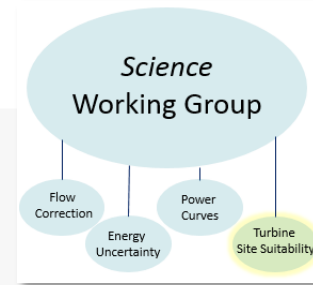
Increase Acceptance of RSDs



Alexandra St. Pé – Group Lead



Mission:
Provide Data-Driven Answers to Key RSD Science Questions



Mission:

- Provide data-driven answers to key RSD site suitability science questions
- Brainstorm and work towards solutions to hurdles that hinder the acceptance of RSD use for site suitability assessment

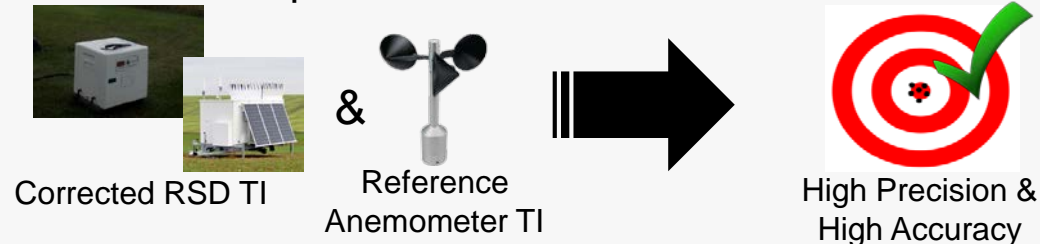
Key Accomplishments:

- 'Scope 1' Research Questions & Methods for Tests Defined:

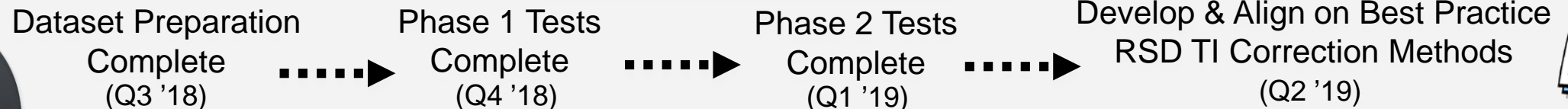
Phase 1 Tests: Is the average TI bias between a corrected RSD and reference anemometer similar to the average TI bias between a reference anemometer and *different* anemometer?

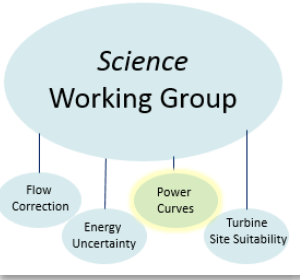


Phase 2 Tests: What are the most accurate & precise "in-house" RSD TI correction methods?



Roadmap & Next Steps:





CFARS Science - Power Curve - Rolando Tejeda - RES-Group

Mission:

- Provide data-driven performance validation of RSD use for Power Curve Testing
- A platform for the industry to brainstorm on performance of RSD for power curve testing
- Provide data to support the IEC 61400 – 12 -1 Edition 2

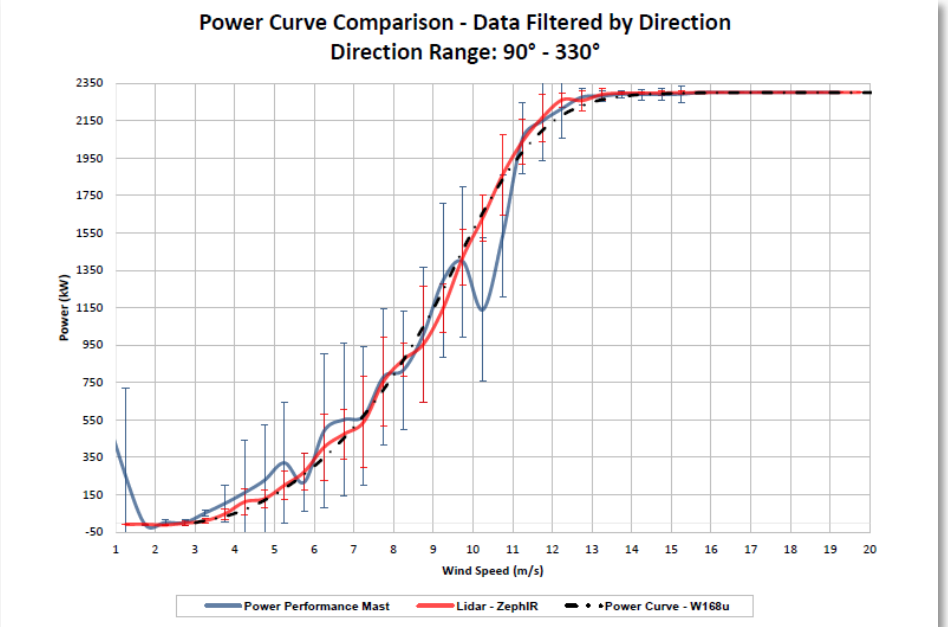
Key Accomplishments:

Power Curve Performance Test with SODAR, LiDAR, and Anemometer: A Comparison Study.

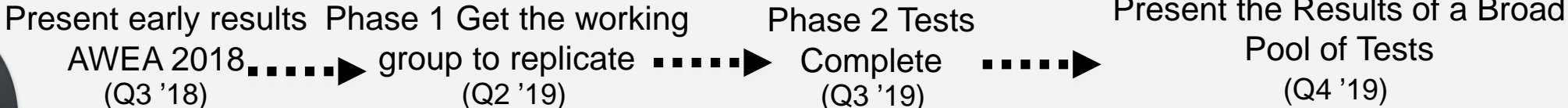
Wednesday, September 12, 2018: 1:30 PM - 3:00 PM

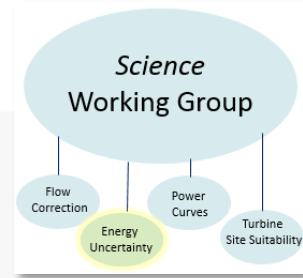


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Roadmap & Next Steps:





Mission:

- Improve RSD acceptance through better understanding and ideally reducing uncertainty associated to the use of RSD in pre-construction estimates

Key Accomplishments:

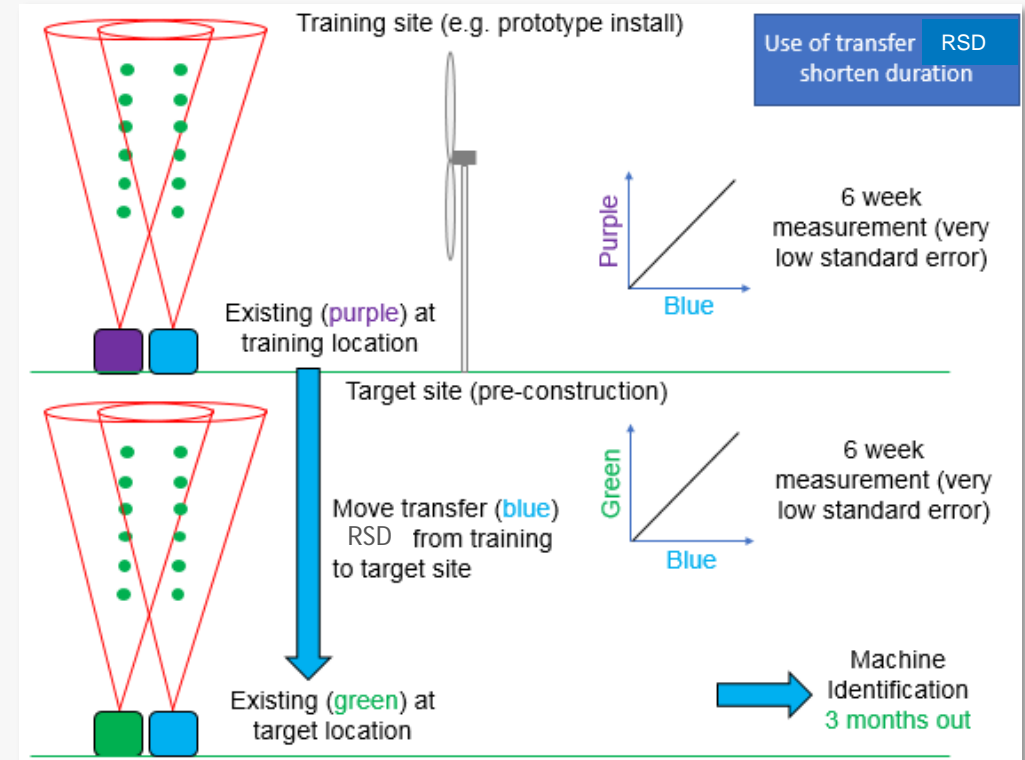
- **Concept Presentation – Calibrate to Power**

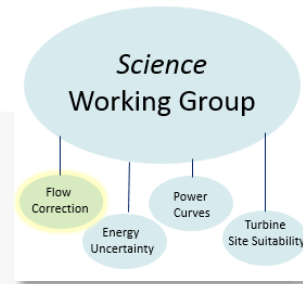
- Initial concept developed by Peter Stuart RES-Group and Matt Smith ZephIR

- **Early engagement with Carbon Trust about the concept**

- **Next Steps**

- Hold a brainstorming session on the topic with Europe, Offshore industry and the major players





Mission:

- Provide data-driven validation of methods used to correct RSD measurement in complex flow
- Improve acceptance of RSD use in complex flow by 2021

Scope Definition:

- Show typical flow curvature bias based on terrain complexity and roughness
- Validate commercially available bias correction methods
- Evaluate correction uncertainty as a function of site and measurement height
- Demonstrate the value in correcting RSD measurements
- Project kick-off in **Q4 2018 (October)**
- Roadmap will be decided based on survey results
- Validation study, uncertainty analysis, comparison of commercial correction offerings, or white paper on theory with terrain type / bias classification.
- Actively seeking members – please contact Niels.LaWhite@Vaisala.com

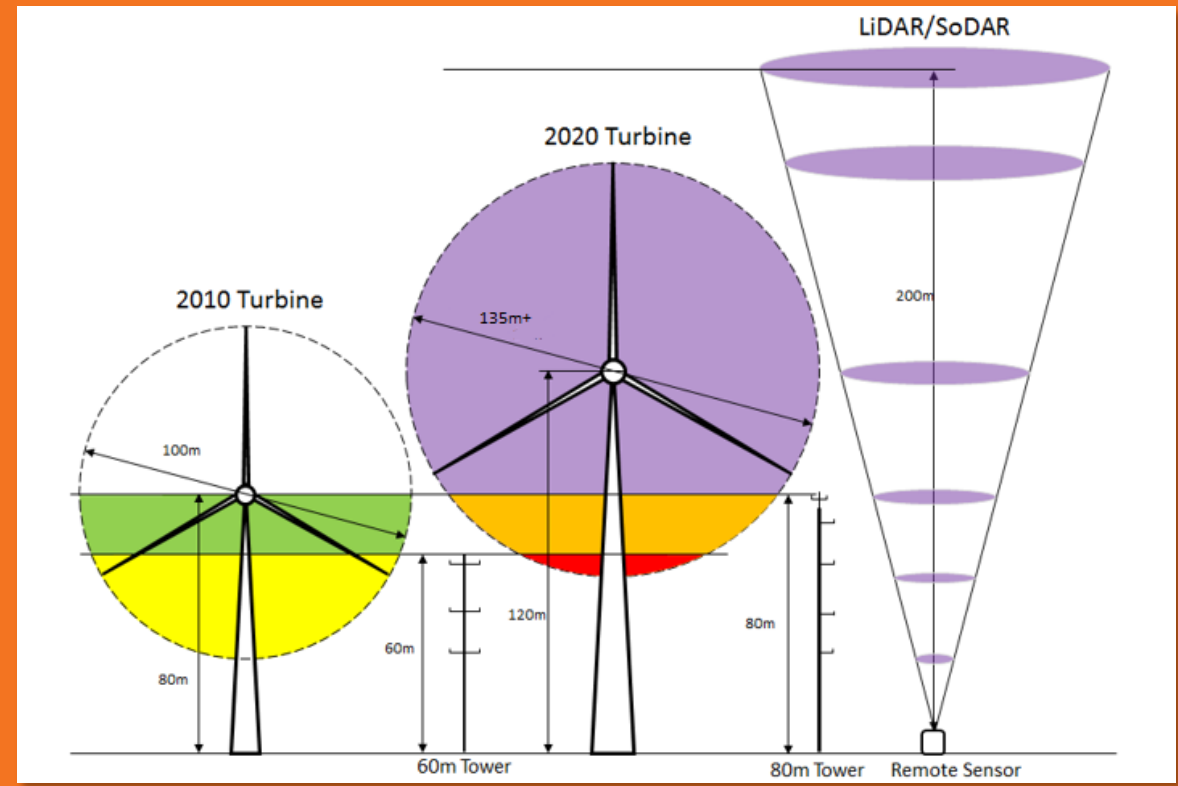


Next Meeting

2018 Q3 - General Update Meeting

AWEA Wednesday September 12th -- 12:00-1:30

4th Floor of Hotel Tannehill Room



Think about this...



Get Involved!



General CFARS Topics
Philippe Coulombe-Pontbriand
Philippe.Pontbriand@res-
group.com



CFARS Science Group
Alexandra St. Pé
alexandra.st.-pe@eon.com



CFARS Guidance Group
Matthew Meyers
matthew.meyers@eon.com